

II B.Tech I Semester Supplementary Examinations, November 2006
DATA STRUCTURES THROUGH C
(Common to Mechanical Engineering, Mechatronics, Metallurgy & Material
Technology, Production Engineering and Aeronautical Engineering)
Time: 3 hours Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write a C program to sum of find the squares of all digits of a given integer.
(for 123, $1^2 + 2^2 + 3^2 = 14$). [16]
2. (a) Define a doubly linked list. Write an algorithm to insert and delete a node in
a doubly linked list.
(b) List the applications of doubly linked lists. [12+4]
3. (a) Write a 'C' Program to convert an infix expression into prefix expression
(b) Transform the following expression to prefix, using the approach
(A + B) * (C\$(D - E) + F) - G [8+8]
4. (a) Mention and explain various types of queues and give an example for each
(b) Compare various types of queues. [8+8]
5. Write a C program for creating, inserting and deletion in a Binary tree. [16]
6. (a) What are the advantages of adjacency matrix representation of graphs.
(b) Define spanning tree of an undirected graph. [8+8]
7. (a) Using linear search delete the number 26 from the list of numbers and give
the steps.
10,7,17,26,32,92
(b) Write a C program to implement the same. [8+8]
8. (a) Write an algorithm for selection sort
(b) Sort the following numbers using selection sort and give the required steps.
96,31,27,42,34,76,61,10,4 [8+8]
